NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE SPECIFICATION

# IRRIGATION WATER CONVEYANCE RIGID GATED PIPELINE SPECIFICATION

CODE 430-HH

## 1. INSTALLATION

The pipe shall be installed according to the recommendations of the manufacturer.

a. **Joints and connections.** All joints and connections shall be capable of withstanding the design maximum working head for the pipeline without leakage and shall leave the inside of the line free of any obstruction that can reduce the capacity below design requirements. All fittings shall be installed according to the recommendations of the manufacturer.

If dissimilar metals are used, the fittings or orifice plates shall be protected against galvanic corrosion. For example, separate dissimilar metals with a rubber or plastic insulator.

A flexible connection shall be installed between the pump discharge pipe and the pipeline. Aluminum lines shall be coupled with a suitable insulating material.

b. **Basis of acceptance.** The acceptability of the pipe shall be determined by inspection to check compliance with all the provisions of this standard with respect to the design of the line, the pipe and pipe markings, the appurtenances used, and the minimum installation requirements.

c. **Certification.** If requested by the state conservation engineer, the manufacturer shall certify that the pipe complies with the requirements of this standard.

## MATERIALS

Gated pipe shall be aluminum, plastic, or other materials approved in accordance with Part 512, Subpart C of the National Engineering Manual.

**Aluminum pipe**

a. **Chemical composition.** The pipe shall conform to the chemical composition criteria in ASTM-B-241, Specifications for Aluminum-Alloy Seamless Pipe and Seamless Extruded Tube; ASTM-B-313, Specifications for Aluminum-Alloy Round Welded Tubes; and ASTM-B-210, Specifications for Aluminum-Alloy Drawn Seamless Tubes.

b. **Wall thickness.** The pipe shall meet the minimum wall thickness listed in **Table 1** for the given pipe diameter and specified material.

**Plastic pipe**

a. **Quality of plastic.** Compounds used in manufacturing plastic gated irrigation pipe shall meet the requirements of one of the PVC materials as specified in ASTM-D-1784 and shown in **Table 2.**

The compound shall contain an ultra-violet stabilizer that will protect against solar degradation for a minimum of 5 years.

Clean, rework material generated from the manufacturer's own pipe production may be used by the same manufacturer if the pipe produced meets all requirements of this standard.

The pipe shall be homogeneous throughout and free from visible cracks, holes, foreign matter, or other defects. The pipe shall be as uniform in color, opacity, density, and other physical properties as is commercially practicable.

**Pipe requirements.** The rigid plastic gated pipe shall meet the dimensional requirements listed in table 3. The minimum working pressure class for this pipe without gates shall be 22 psi or 50 ft. of head.

In addition, the pipe shall meet the requirements of

ASTM-D-2241, Polyvinyl Chloride (PVC) Plastic Pipe (SDR-PR), as shown in sections pertaining to dimensions and tolerances, flattening, extrusion, quality, conditioning, test conditions, and sampling. The dimensions and tolerances in **Table 3** shall apply.

**Pipe markings for plastic pipe**

a. **Markings.** Markings on the pipe shall include the following, spaced at intervals of not more than 5 ft.

1. Nominal pipe size (e.g., 10 in.).

2. Applicable material specification according to the designation code (e.g., PVC 1120).

3. Manufacturer's name or trademark.

b. **Fittings and couplers.** All fittings and couplers shall equal or exceed the pressure rating of the pipe with which they are used. They shall be made of material that is recommended by the manufacturer for use with the pipe.

The pipe and appurtenances shall be furnished with a coupling system that is interchangeable with aluminum gated pipe.

c. **Rubber gaskets.** Gasket dimensions shall be according to the manufacturer's standard design dimensions and tolerances. The gasket shall be of such size and shape as to provide an adequate compressive force against the spigot and socket after assembly to effect a positive seal.

The gasket shall be the sole element depended upon to make the joint flexible and watertight. The gasket shall be a continuous elastomeric ring.

**Table 1. Minimum Wall Thickness for Aluminum Gated Pipe**

| Tube Diameter | Minimum Wall Thickness |
|---|---|
| - Inches - | - Inches - |
| 6 | 0.050 |
| 8 | 0.050 |
| 10 | 0.050 |
| 12 | 0.058 |

**Table 2. Material Specifications for Plastic Gated Pipe**

| Code Classification | Designation |
|---|---|
| 12454-B | PVC 1120 |
| 12454-C | PVC 1220 |
| 13333-D | PVC 2116 |
| 13333-D | PVC 2112 |
| 13333-D | PVC 2110 |

**Table 3. Dimensions and Tolerances of Rigid Gated Plastic Pipe**

| Nominal Size | Outside Diameter | | Wall Thickness | |
|---|---|---|---|---|
| | Average | Tolerance + / - | Minimum | Tolerance + / - |
| Inches | Inches | Inches | Inches | Inches |
| 6 | 6.000 | 0.011 | 0.120 | 0.020 |
| 8 | 8.000 | 0.015 | 0.120 | 0.020 |
| 10 | 10.000 | 0.015 | 0,120 | 0.020 |
| 12 | 12.000 | 0.015 | 0.120 | 0.020 |